4. ENVIRONMENTAL SETTING OF THE PROPOSED SITE

This section discusses the environmental, ecological, and archaeological aspects and concerns associated with the proposed location.

4.1 Groundwater Protection

Groundwater beneath the INEEL is protected under the *State of Idaho Groundwater Quality Requirements,* Title 1, Chapter 2, "Idaho Water Quality Standards and Wastewater Treatment Requirements" and Title 1, Chapter 17, "Idaho WLAP Regulation," DOE Order 5400.5, and other state and federal requirements (Holdren et al. 1997). The SRPA is an extremely important fresh water resource in Idaho that yields about 8.0×10^9 m^3 (6.5 million acre-ft) of high quality water annually for irrigation, municipal, and industrial uses. In 1991, the aquifer was designated as a sole-source aquifer for the region.

It is the goal of the regulations to maintain "no impact" to groundwater from INEEL activities, including the proposed discharges associated with new percolation ponds.

4.1.1 Background Groundwater Quality at INTEC

The USGS and DOE-ID have collected periodic samples for analysis to monitor the concentrations and movement of contaminants in the aquifer. These data can be found in USGS publications and in the Environmental Restoration Information System database.

Groundwater quality data specific to INTEC are also contained in USGS reports and most recently in the RI/BRA for WAG 3 OU 3-13 (DOE-ID 1997). Contaminated groundwater at INTEC will not be discussed in this evaluation because it is addressed in other reports.

4.1.2 Background Groundwater Quality at the Proposed Site

Site-specific background groundwater quality at the new percolation pond proposed location has not been characterized due to the absence of wells. The closest aquifer wells that may provide some indication of aquifer quality are the Rifle Range Well, Landfill III monitoring wells, USGS-76, -78, -84, -85, and the arc of monitoring wells southwest of INTEC. Data from these wells have not been compiled and analyzed. However, Figures 4-1, 4-2, 4-3, 4-4, 4-5, 4-6 show known contaminant plumes originating at INTEC and TRA and their locations relative to the new facility (USGS 1997a). The WLAP application for the new facility proposes well locations, monitoring frequencies, and analytical parameters for aquifer and perched water wells.

4.1.3 Wastewater Land Application Permitting

Management Control Procedure (MCP)-465 outlines the federal and State of Idaho requirements for constructing, modifying, and operating a facility to treat or dispose municipal and industrial wastewater by land application. These requirements apply to percolation ponds, rapid infiltration systems, and wastewater irrigation systems, as well as other applicable discharges of wastewater to the land surface. The State of Idaho water quality standards and wastewater treatment rules and regulations pertaining to land application of wastewater require that, wherever attainable, State groundwater shall be protected for beneficial uses including potable water supplies.

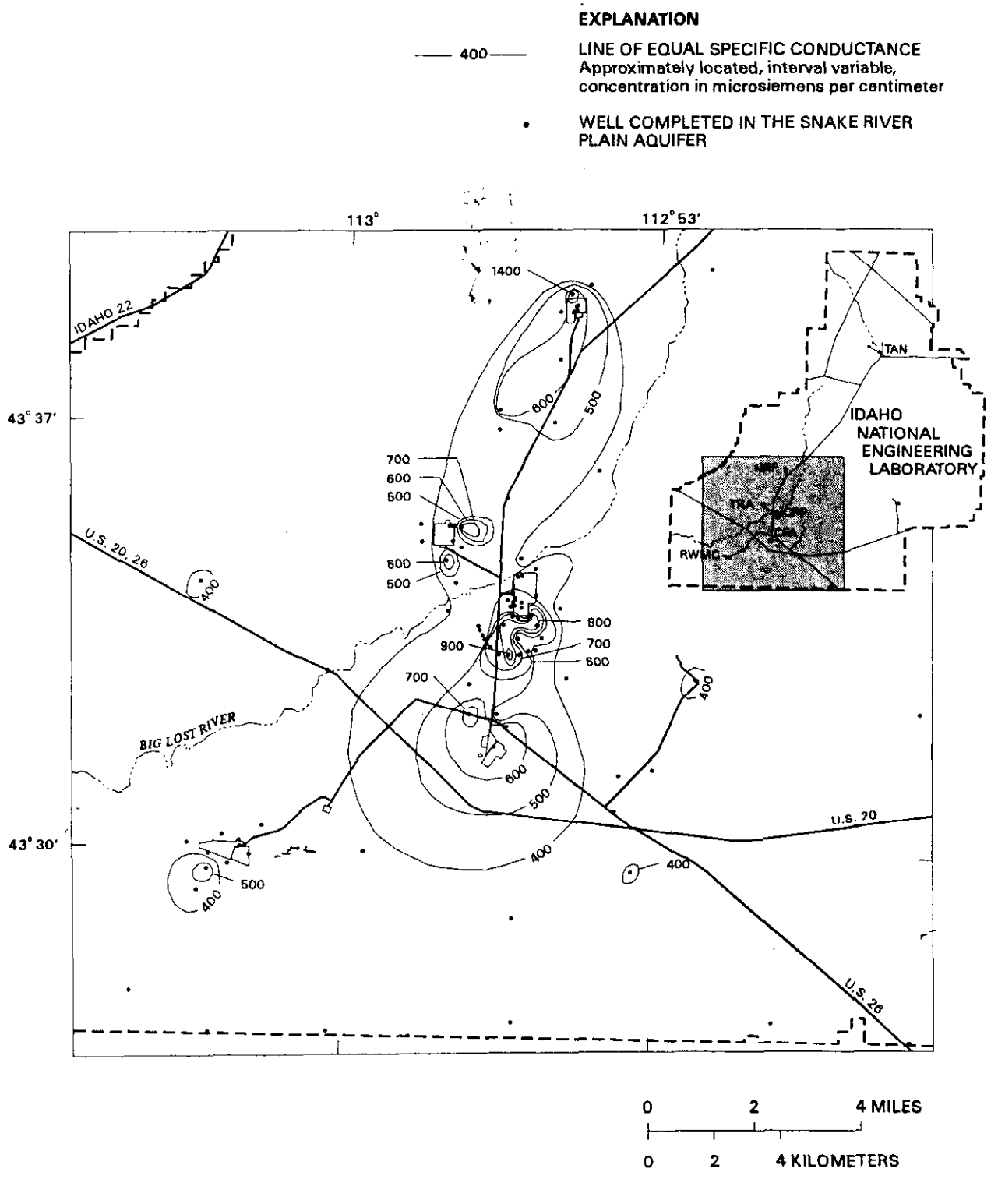


Figure 4-1. Distribution of specific conductance of water from the SRPA at the INEEL, October 1995.

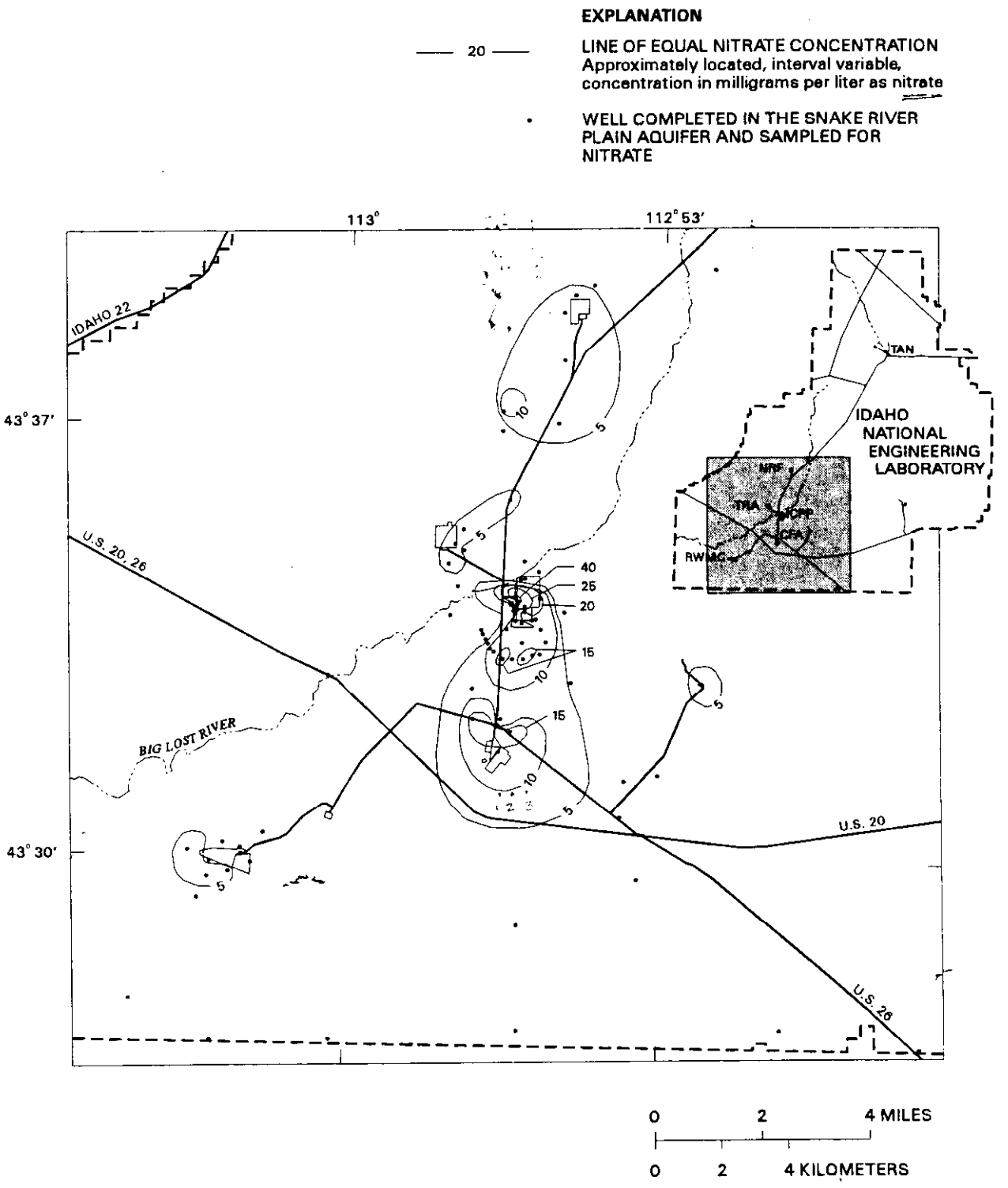


Figure 4-2. Distribution of nitrate in water from the SRPA at the INEEL, October 1995.

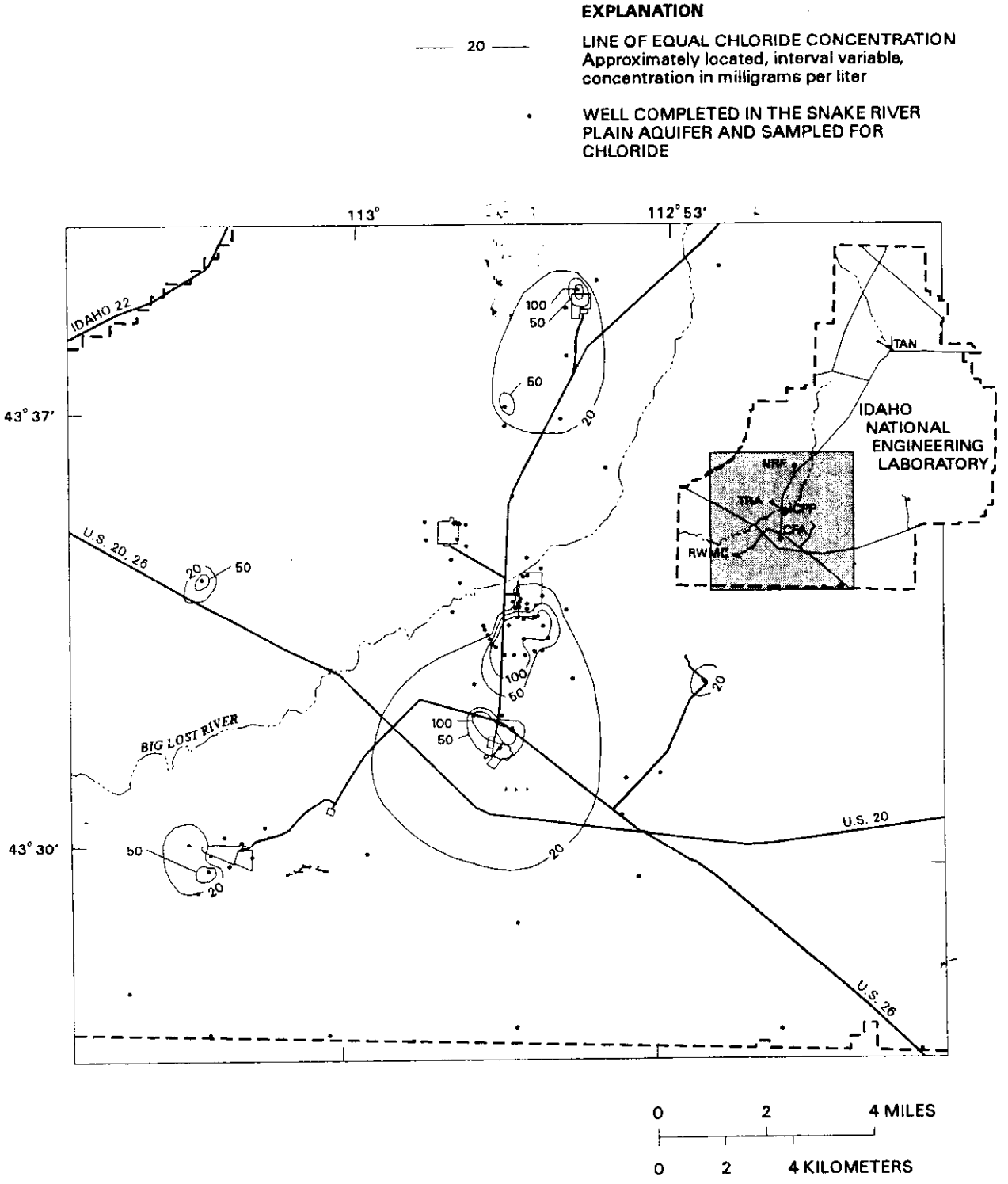


Figure 4-3. Distribution of chloride in water from the SRPA at the INEEL, October 1995.

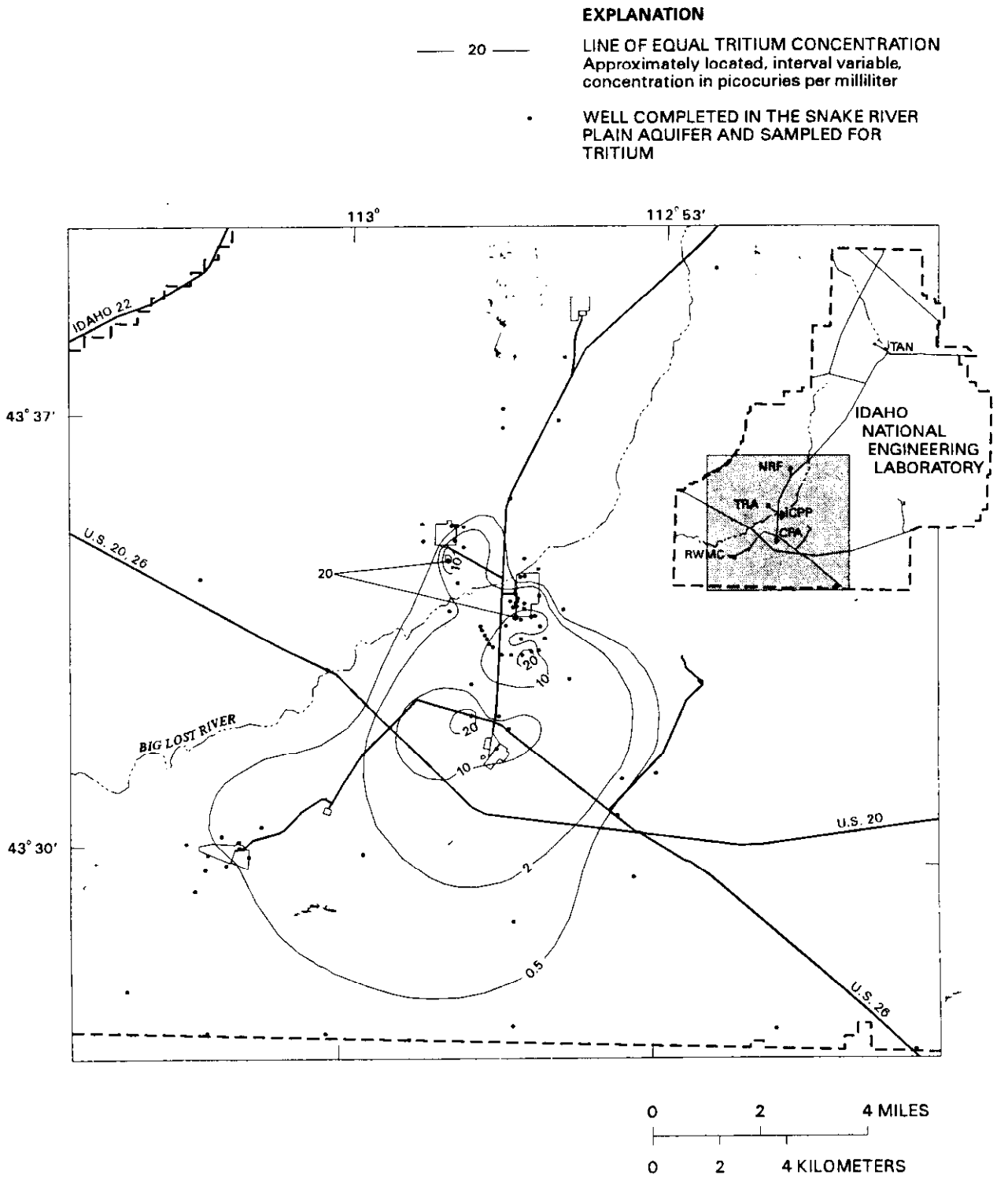


Figure 4-4. Distribution of tritium in water from the SRPA at the INEEL, October 1995.

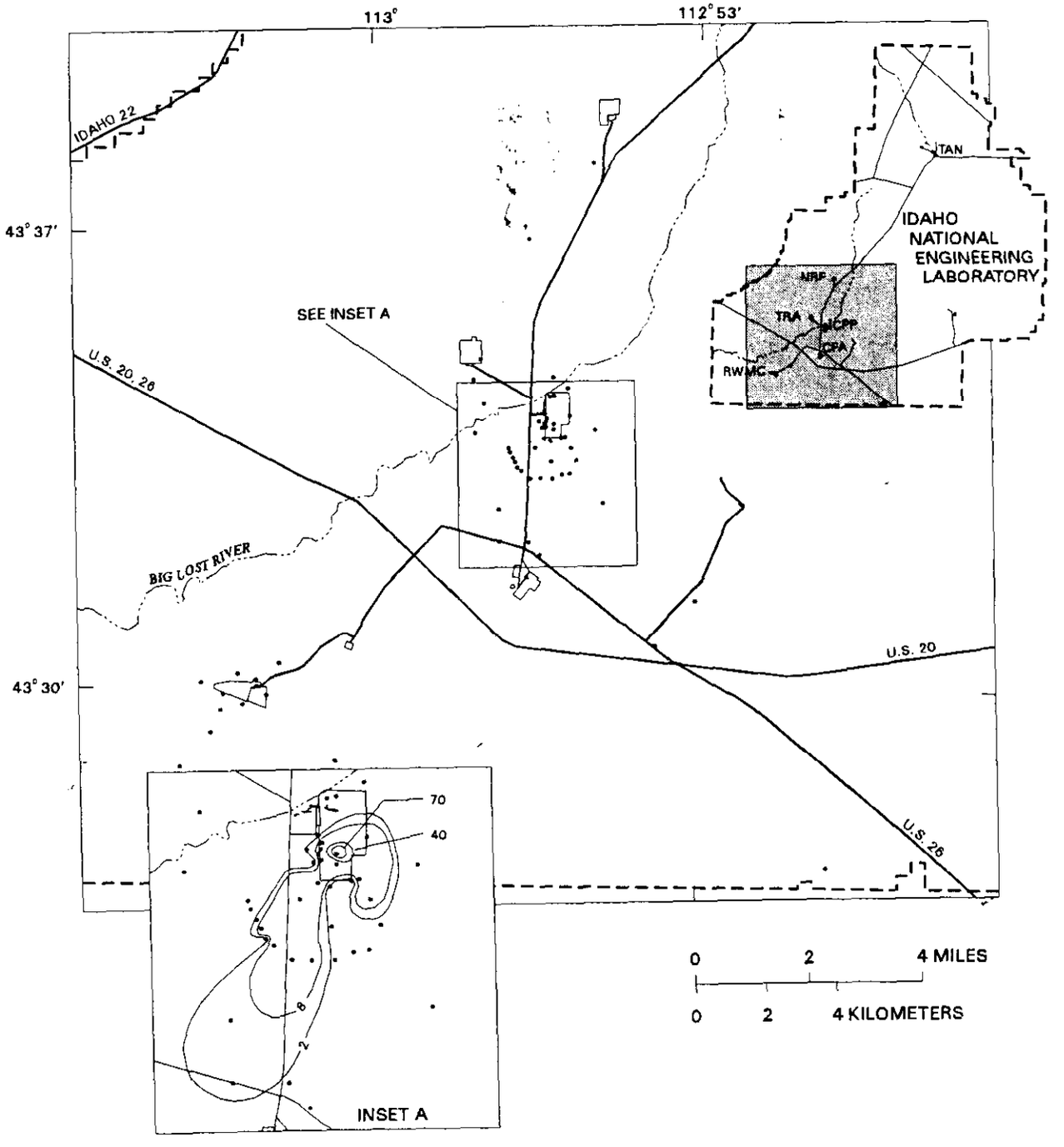
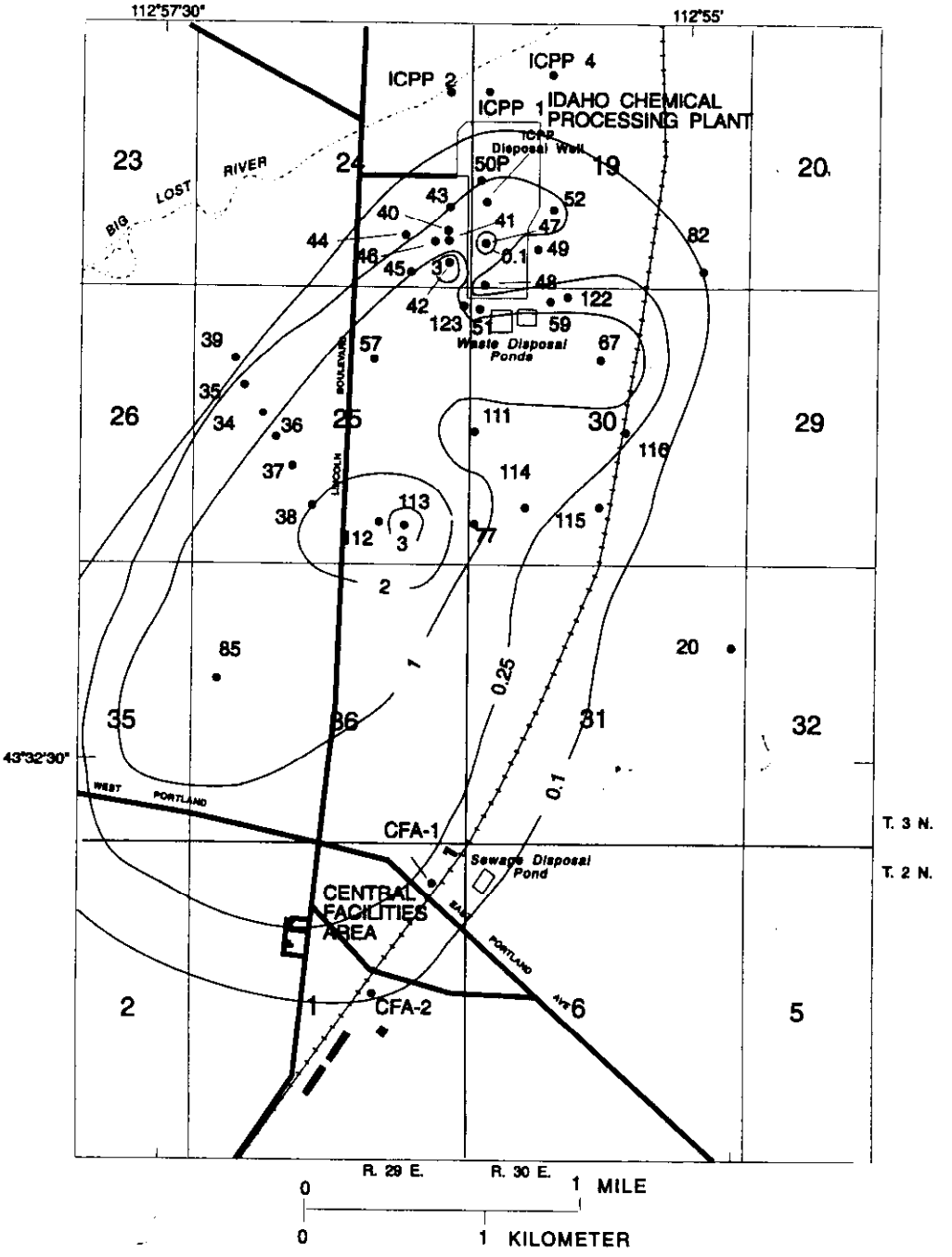


Figure 4-5. Distribution of strontium-90 in water from the SRPA at the INEEL, October 1995.



EXPLANATION

—1— LINE OF EQUAL IODINE-129 CONCENTRATION--Interval, in picocuries per liter, is variable

57 • WELL FROM WHICH WATER SAMPLE FOR IODINE-129 WAS COLLECTED IN 1990-91--Number, 57, is local well identifier; P indicates well obtains water from a perched ground-water zone. See table 2 for iodine-129 concentrations in specific wells

Figure 4-6. Areal distribution of iodine-129 in the SRPA near the ICPP, 1990-91.

The State of Idaho guidelines for permitting land application of wastewater are issued under the IDAPA 16.01.17300.04 and .05. The *Handbook for Land Application of Municipal and Industrial Wastewater*, also provides information and guidance for permit preparation. Permits are submitted through DOE-ID to the State of Idaho, Division of Environmental Quality (DEQ). The new INTEC percolation ponds will be designed and located to meet all the requirements of the wastewater land application regulations. Additional applicable requirements may be found in the EPA *Process Design Manual for Land Treatment of Municipal Wastewater* (EPA 1981) and the associated supplement *Supplement on Rapid Infiltration and Overland Flow* (EPA 1984).

For the permit application, it is critical that the maximal lateral spread of the zone of 100% saturation in the perching layers be estimated, detected, and monitored. In order to satisfy the state regulation requiring that impacts to the groundwater must be measurable, the aquifer monitoring wells must be placed outside the zone of 100% saturation. Based on knowledge of the behavior of water within the vadose zone from other locations (TRA, RWMC, TAN, and the existing INTEC percolation ponds), it is assumed that water infiltrating from new ponds will migrate downward until intercepting the least shallow, lesser permeable zone. From there, it will spread laterally some distance, then will migrate predominantly vertically to the aquifer. This location of initial contact of the wastewater with the aquifer water is the point from which monitoring for impacts to the aquifer must occur.

4.1.4 Wellhead Protection and Capture Zones

The *Idaho Wellhead Protection Plan*, published in February 1997 by the Division of Environmental Quality (DEQ 1997), describes a program (currently voluntary) which recommends the establishment of a "Wellhead Protection Program" to prevent the contamination of drinking water wells. This program is intended to protect drinking water supplies through the delineation of wellhead protection areas followed by the implementation of management policies for these areas (and the potential contamination sources within them) relative to the levels of risk they pose. Wellhead protection areas are defined as surface and subsurface areas surrounding a well through which contaminants are likely to move and contaminate the well over specified time periods. Subsurface areas are generally upgradient of the protected wells. Capture zone analysis requirements are specified in the Wellhead Protection Plan. The State of Idaho has not set an implementation deadline for making the program mandatory. However, it will be a required part of the EPA Source Water Assessment Program, which is currently enforceable.

An INEEL Wellhead Protection Program transmittal, dated October 16, 1997 (see Appendix A) was prepared with the intent of minimizing impact to existing and future operations while establishing a program that improves groundwater protection in cases where a significant risk to INEEL water sources now exists or may exist in the future. Proposed in the document are wellhead protection zones intended to alert INEEL operations and projects personnel to the risks of groundwater and wellhead contamination in certain areas and force the implementation of appropriate controls and policies to ensure that the potential risks are evaluated prior to construction or similar activities. It is not the intent to discontinue or prohibit common INEEL activities within the Wellhead Protection Areas.

Attachment A of the program transmittal describes the requirements of the DEQ's Plan, discusses the development of the current wellhead protection zones, and addresses future program implementation tasks. Funding for the plan was terminated prior to final acceptance of the document.

Figure 4-7 illustrates the recommended wellhead protection zones for production wells CPP-01 and CPP-02, and drinking water wells CPP-04, and CPP-05 (a.k.a. ICPP-POT-A-012) and the Rifle Range Well. As shown, the proposed location of new INTEC percolation ponds lies within the 6-year capture zone for the Rifle Range Well. This well, although designated as a drinking water well, has minimal use and supplies a small population. Because of this and the uncertainty associated with groundwater

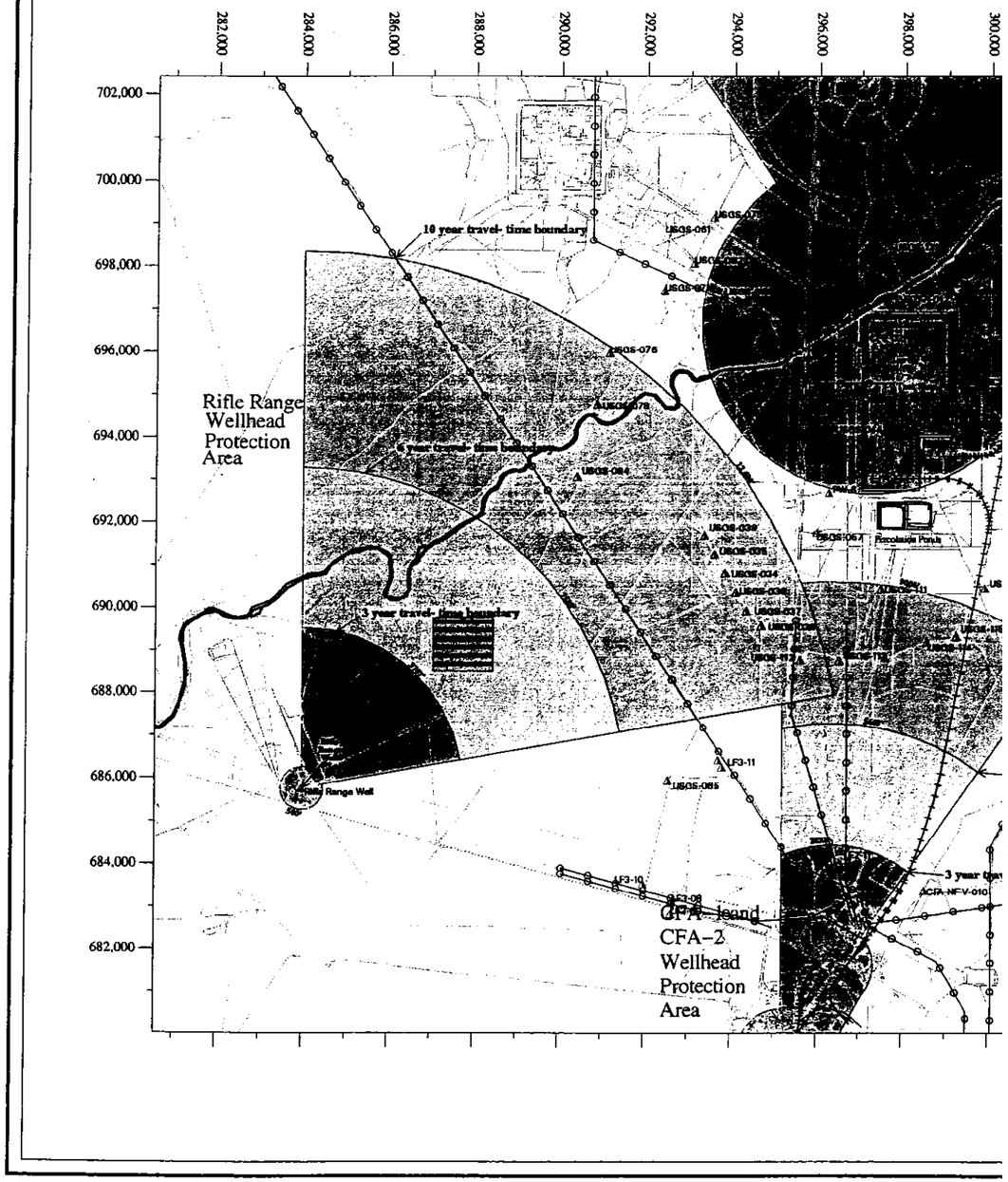


Figure 4-7. Wellhead protection zones for CFA and INTEC potable water wells.

velocities used to calculate the extent of these zones, it is anticipated that the state will not require a mixing zone analysis for water within the capture zone. However, the designation of the well will be changed and other arrangements will be made to supply drinking water to the users of the associated facility.

4.1.5 Storm Water Discharges

The INEEL must comply with the EPA Administered Permit Programs: (1) National Pollutant Discharge Elimination System (40 Code of Federal Regulations [CFR] 122), *Storm Water Multi-Sector General Permit for Industrial Activities* (EPA 1995) issued by the EPA, and (2) modifications issued on September 30, 1998 (EPA 1998). EPA's recommended approach to storm water management is through the use of storm water pollution prevention plans designed to prevent or minimize the pollution of storm water. As storm water flows over surfaces where industrial or construction activities are taking place, there is the potential for contaminants to be picked up by the water and transported to a receiving stream which then flows to the Big Lost River.

Figure 4-8 shows an approximate area where storm water has a reasonable potential to drain to the Big Lost River System. For the Big Lost River and its tributaries, the drainage area is based on Bennett (1990). Requirements of the General Permit are applied to activities within the area of potential storm water drainage to the Big Lost River.

The Storm Water Program will manage activities that fall within the regulatory definition of *storm water discharge associated with industrial activity* (SWPPP-IA). Within this definition are 11 categories of industries that are considered to be engaging in storm water-regulated activities. Each category is further defined by a standard industrial classification code. The primary code for the INEEL is not included in the categories; therefore, the General Permit is not initially applicable to the INEEL. However, because the INEEL performs some of the activities in the narrative categories, and because some of those activities have the potential to discharge to the Big Lost River, the INEEL must comply with the General Permit.

Examples of activities associated with the siting of new percolation ponds that fall under the regulatory definition of an industrial activity include geotechnical investigations with minimal disturbance, archaeological investigations with minimal disturbance, and borrow source operation. Construction activities are addressed in the INEEL *Storm Water Pollution Prevention Plan for Construction Activities* (SWPPP-CA) (DOE-ID 1998b). Industrial activities area addressed in the INEEL *Storm Water Pollution Prevention Plan for Industrial Activities* (SWPPP-IA) (DOE-ID 1998).

The proposed pond location is within the storm water discharge corridor. The INEEL SWPPP-CA will govern the construction of the ponds and a project-specific SWPPP-CA is required. Also, the INEEL SWPPP-IA will govern the following activities:

- Geotechnical investigations with minimal disturbance
- Archaeological investigations with minimal disturbance
- Operation of borrow sources during construction
- Operation of the ponds after construction.

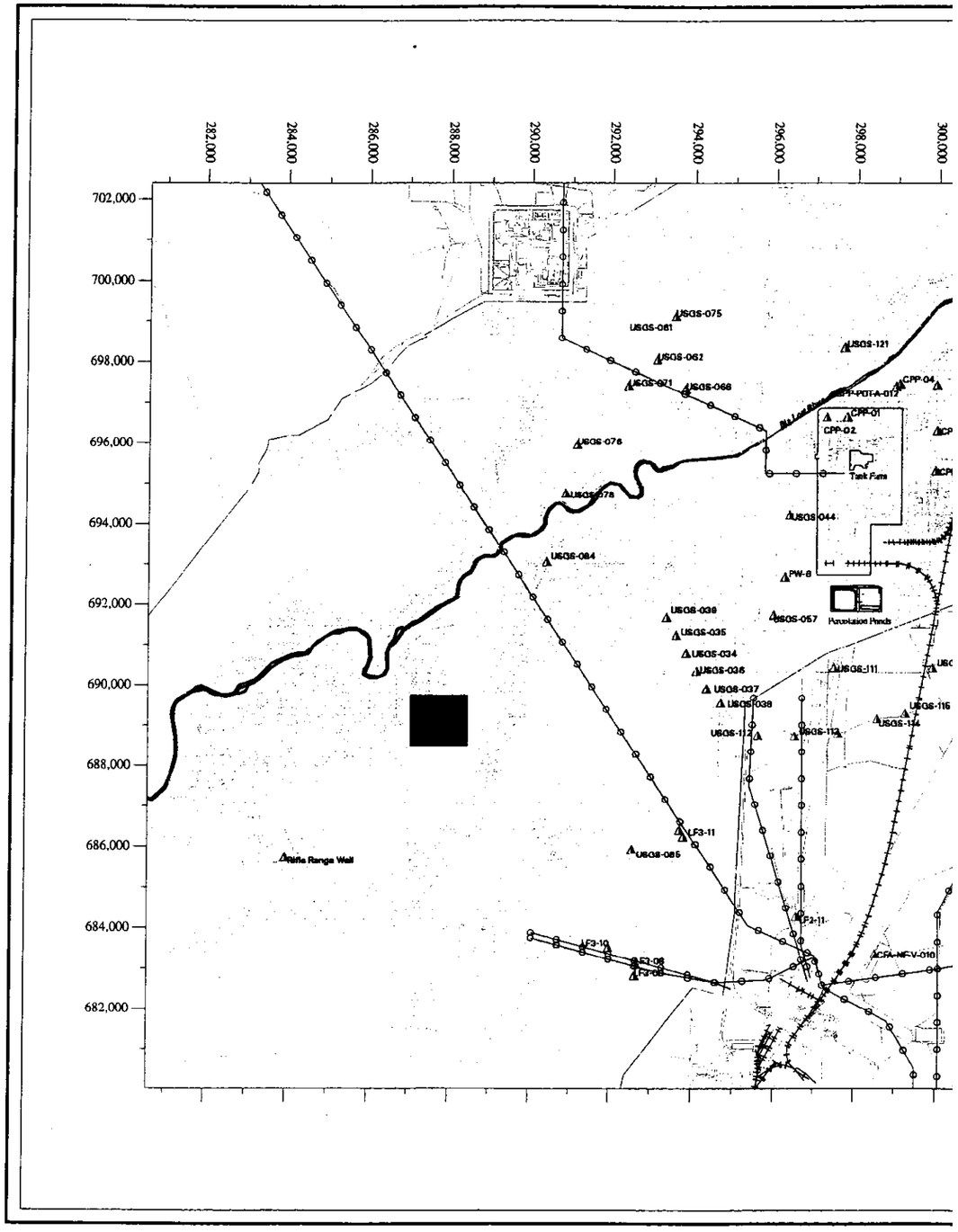


Figure 4-8. Big Lost River potential storm water drainage areas.

4.2 Flora and Fauna

The INEEL is designated as a Department of Energy (DOE) National Environmental Research Park. The research parks were established to provide protected land areas for research and education in the environmental sciences and to demonstrate the environmental compatibility of energy technology development and use. The designation was intended to ensure that careful consideration is given to ongoing environmental research projects and protected natural areas in any site-use decisions, while ensuring that programmatic missions are carried out.

Various areas of the INEEL site are unique habitat for plant and animal species or are important as long-term ecological study sites. Known wetlands and habitat of endangered species are defined in DOE Order 6430.1A as environmentally sensitive areas that, ". . . shall be avoided or receive lowest siting priority for treating, storing, and disposing of . . . radioactive wastes." Other areas, though not protected by statute, are important as breeding or wintering areas for relatively rare wildlife species. Figure 4-9 illustrates some of the areas near INTEC that have been identified as ecologically significant. However, the diverse ecosystems on the INEEL have not been fully characterized and biodiversity and habitat diversity are not fully understood.

4.2.1 Threatened or Endangered Species and Species of Concern

Habitat of threatened or endangered species is considered by DOE as environmentally sensitive. Only four threatened or endangered species are potentially located on the Site: (1) two birds, the bald eagle and (2) the peregrine falcon; (3) one mammal, the gray wolf; and (4) the plant Ute's ladies tresses.

The bald eagle occasionally winters on the INEEL and any wintering habitat should be avoided. Wintering habitat may include riparian areas or other areas with trees for roost sites. Most sightings of bald eagles have been on the northern portion of the INEEL.

Peregrine falcons have been observed rarely in the winter and not at all in other seasons on the INEEL. The last recorded observation was in 1993. The species is not known to nest on the Site.

To date, the gray wolf has not been sighted on the INEEL, but the wolf potentially could expand its range onto the Site. No critical habitat for the wolf on the INEEL has been identified.

Though it is possible, it is unlikely that the plant Ute's ladies tresses occurs on the INEEL. It is usually found in low-lying riparian areas such as along the South Fork of the Snake River near Heise, Idaho. To date, no occurrences of the plant have been recorded on the INEEL. Given other siting criteria such as avoidance of riparian areas and flood zones, it is unlikely that this plant would be encountered at candidate sites.

In addition to threatened or endangered species, the U.S. Fish and Wildlife Service lists species that are of concern because of low population numbers and threats to their long-term viability. The species of concern comprise the long-eared myotis, the small-footed myotis, Townsend's big-eared bat, the pygmy rabbit, Merriam's shrew, the ferruginous hawk, the long-billed curlew, the northern sagebrush lizard, the painted milkvetch, King's bladderpod, the nipple cactus, the sepal-toothed dodder, Lemhi milkvetch, the winged-seed evening primrose, the spreading gila, and the tree-like oxytheca. Although not protected by law, these species are important contributors and indicators of the biodiversity and habitat diversity of the region. Their habitats should be considered in any planning and siting decisions.

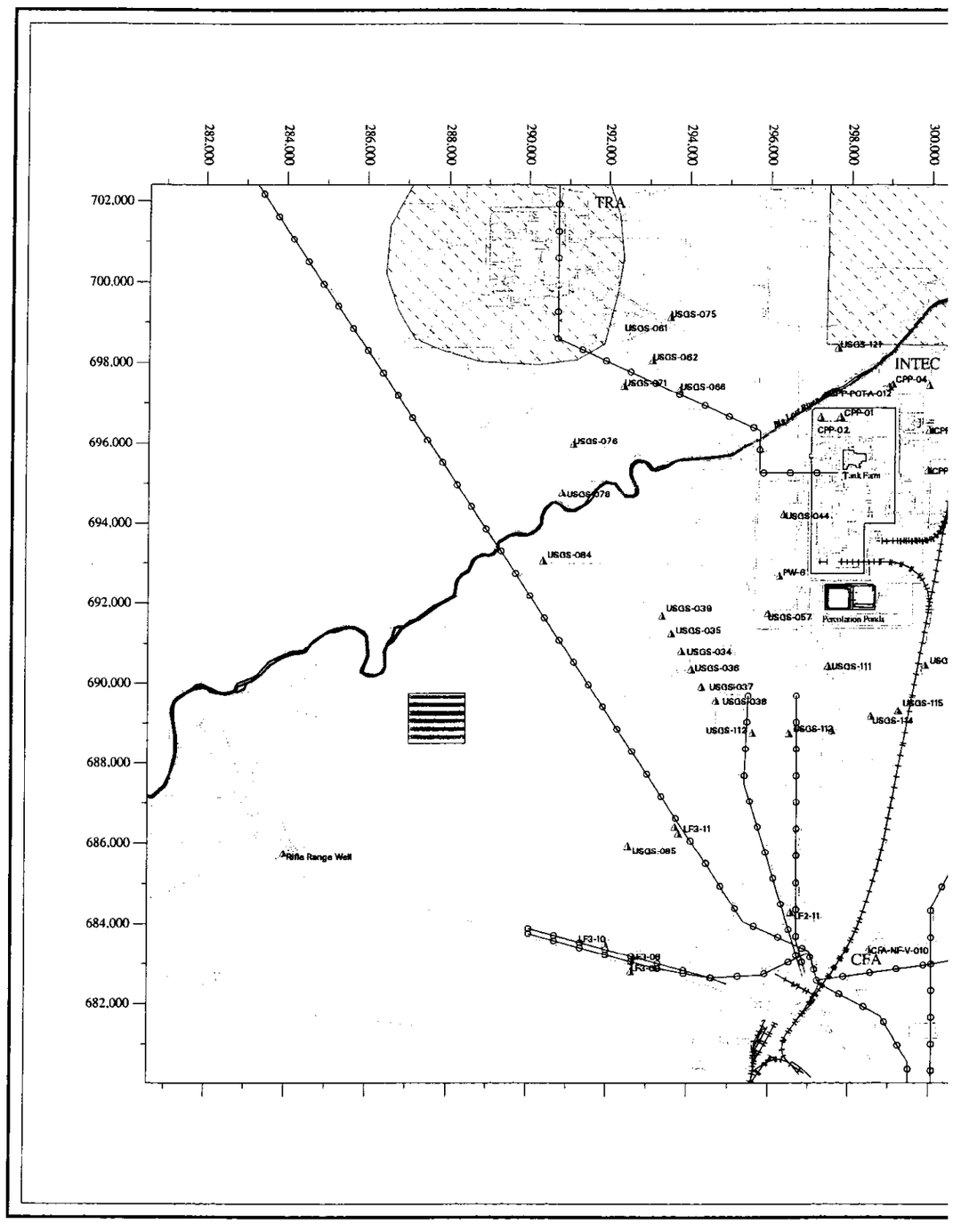


Figure 4-9. Ecologically significant areas around INTEC.

4.2.2 Wetlands

Wetland habitat on the INEEL has been mapped by the U.S. Fish and Wildlife Service (USFWS) as part of the National Wetland Inventory (NWI). Areas on the INEEL identified in the inventory include numerous playas, basins, and the Big Lost River and Birch Creek drainages (Hampton et al. 1995). A number of manmade ponds, including facility impoundments, also appear on the maps. The MSI program was implemented to characterize and map the nation's wetland resources using the USFWS wetlands classification system (Cowardin et al. 1979). The maps are primarily based on hydrological (and to some extent, vegetative) features mapped from high altitude aerial photographs (USFWS 1990), verified by limited ground truthing. The primary purpose of the maps is to identify wetland habitat. The maps are not intended to represent jurisdictional wetland boundaries. Wetlands subject to agency regulation must meet rigorous vegetation, hydrological and soil criteria verified through a formalized field survey and delineation process (U.S. Army Corps of Engineers 1987; FICWD 1989). Some areas within the Big Lost River drainage, for example the "sinks," have characteristics that meet these criteria. However, the precise locations and extent of the areas have not been delineated for regulatory purposes.

4.2.3 Riparian Areas

Riparian habitat (i.e., habitat with vegetation dependent on surface water) makes up a small percentage of the cover types on the INEEL, but is important to many species of plants and both resident and migrating animals. To protect this habitat, buffer zones have been established along the Big Lost River in the *Comprehensive Facility and Land Use Plan* (DOE-ID 1996). The proposed site for the percolation ponds is outside of this buffer zone.

4.2.4 Other Ecologically Important Areas

In addition to wetlands and riparian zones, many other areas on the INEEL have been mapped as ecologically important habitat. The habitat includes areas that have been identified as having significant value for supporting sensitive or unique plant and wildlife species and communities (e.g., pronghorn wintering areas, raptor nesting sites, and sage grouse breeding or courtship areas). In addition, some areas have been set aside for specific ecological studies.

The sensitive area just north of INTEC (Figure 4-9) has been designated as a buffer for the experimental dairy farm. The buffer zone is well north and east of the proposed site for the percolation pond and would not be disturbed by construction nor influenced by operation of the pond.

4.2.5 Long-term Vegetation Transects

Two linear vegetation transects cross the INEEL from southwest to northeast and from southeast to northwest as shown in Figure 4-9. Data collected along these linear transects since 1949 are used to monitor long-term changes in vegetation and the impacts of INEEL activities on the natural environment. The transects and the buffer zones (1 mile on either side of the transects) should be left undisturbed.

The vegetation transects and associated buffer zones are east of the proposed site for the percolation pond and would not be disturbed by construction nor influenced by operation of the pond.

4.3 Archaeological Resources

Investigations of INEEL cultural resources were initiated in the late 1960s in response to federal environmental legislation, specifically, the National Historic Preservation Act (NHPA) of 1966. Since that time, approximately 4% of the reservation has been systematically surveyed and more than 1,500 resources have been identified. This inventory includes prehistoric resources representing a span of

approximately 12,000 years. Historic resources range from important nuclear facilities like the Experimental Breeder Reactor I (EBR-I) (first reactor in the world to produce electrical power recognized as a National Historic Landmark) to paleontological sites. More than 40,000 prehistoric cultural resources may be present on the INEEL with an estimated density of 50 sites per square mile. Comprehensive histories of, and legal mandates for, INEEL cultural resource management, and the results of several decades of compliance-driven research can be found in the *INEL Management Plan for Cultural Resources* (Miller 1995).

The majority (94%) of cultural resources identified on the INEEL are prehistoric. These are classified into one of three broad cultural periods that are marked by changes in weapons systems and span the past 12,000 years. These periods are Early Prehistoric (12,000 to 7,500 years before present), Middle Prehistoric (7,500 to 1,300 years before present), and Late Prehistoric (1,300 to 150 years before present). To date, only 6% of identified cultural resources represent the Historic period (150 years before present to present, or since the early 1800s); most of these are agricultural. The INEEL historic building inventory and assessment (Braun and Marler 1995, 1996) provides an inventory of more than 1,000 important properties associated with INEEL scientific and engineering missions, including those built in support of World War II.

4.3.1 Application of Section 106 of the National Historic Preservation Act

Section 106 of the NHPA refers to the federal review process designed to ensure that prehistoric and historic properties are considered during federal project planning and execution. In this process, federal agencies identify the properties that could be affected by the actions of the agencies, determine whether adverse effects are possible, and if so, try to avoid or reduce the negative impacts. The responsible federal agency consults with the State Historic Preservation Officer and, in many cases, the National Advisory Council on Historic Preservation. This consultation process normally results in a legally binding Memorandum of Agreement (MOA), which outlines the measures the agency will take to avoid, reduce, or mitigate adverse effects. When the MOA is executed, the agency proceeds with its actions under the terms of the MOA. A detailed account of the legal basis for cultural resources management can be obtained in Appendix A of the *INEEL Management Plan for Cultural Resources* (Miller 1995).

All projects at the INEEL that involve ground disturbance outside facility fences or more than 15 m (50 ft) from existing structures in unfenced areas must be reviewed by the Cultural Resource Management Office (CRMO). Environmental checklists, outages, and safe work permits cannot be approved until this review is completed. Recommendations resulting from this review, or archival search, can range from "no further cultural resource work, project may proceed" to "archaeological excavations required," depending on the level of previous archaeological investigation in the area. Approved projects always carry the standard stipulation that all work must be stopped if unanticipated "unusual" materials are discovered during project implementation. In this context, "unusual" materials are defined as certain animal bones, obsidian and stone tools, projectile points (arrowheads), ceramics, lithic flakes or "chips," charcoal-stained soil horizons, and human remains. If subsurface cultural resources are discovered during ground disturbing activities, testing or monitoring may be required in accordance with standard NHPA processes to mitigate any adverse effects related to the activities. Figure 4-10 illustrates areas near the INTEC that have been subjected to at least some level of archeological survey.

The CRMO must also review any projects that involve the modification or demolition of existing structures. Environmental checklists cannot be approved until this review is completed. Resulting recommendations can range from "no further work, project may proceed" to "Memorandum of

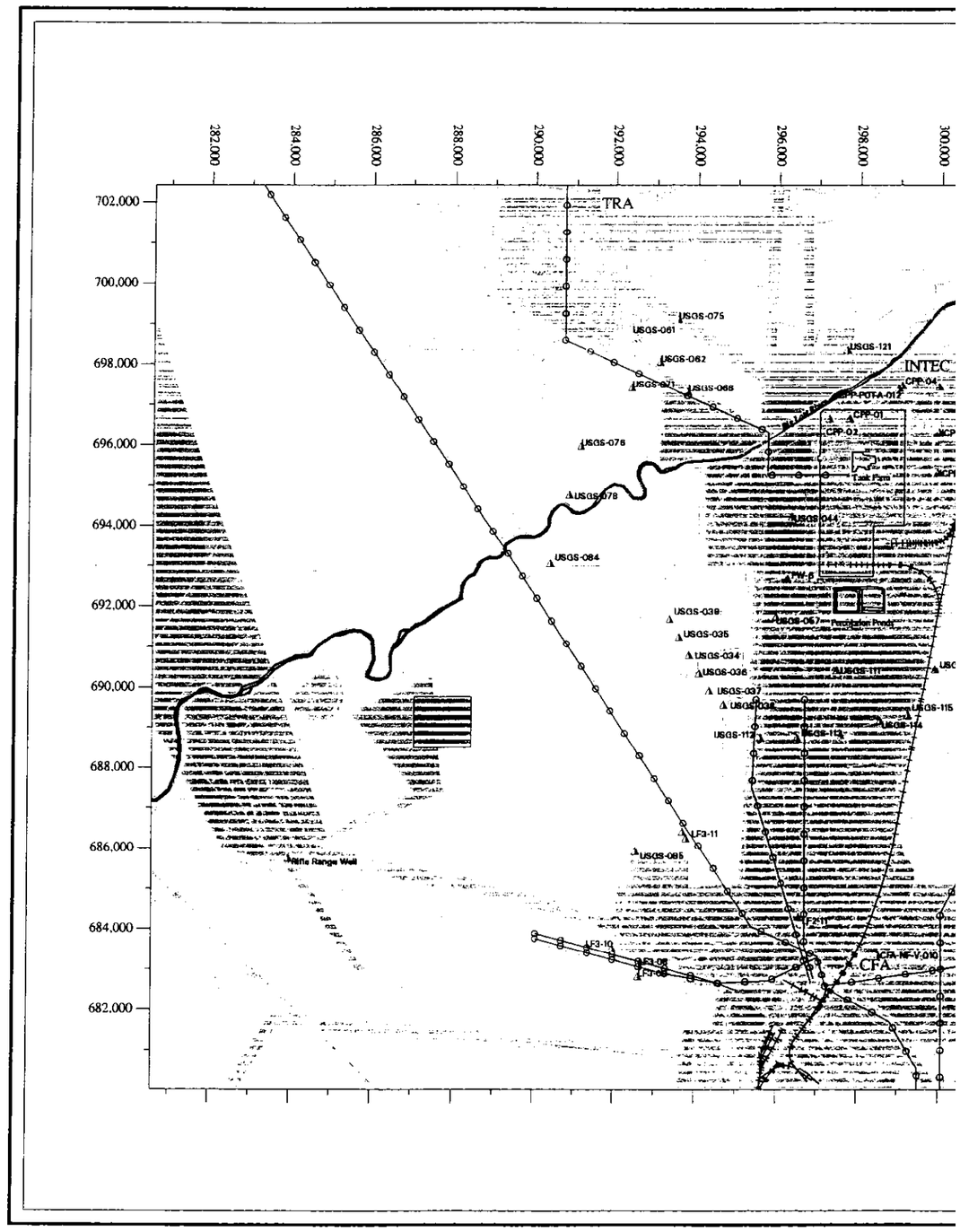


Figure 4-10. Archaeological surveys completed near INTEC and CFA.

Agreement required," depending on the level of historical investigation completed for the structure or facility. Activities that alter a structure's footprint (such as additions or demolitions), setting (such as a relocation), use, ownership (such as a lease, transfer, or sale), or result in a change in appearance of the interior or exterior or in deterioration of the structure (closure, no maintenance) require CRMO review.

Involvement of the CRMO in early phases of project planning is critical to avoid delays attributed to cultural resource concerns. Documentation of CRMO recommendations is transmitted via electronic mail or formal correspondence and is classified as an auditable record for project files.

4.4 Unexploded Ordnance

Figure 4-11 shows areas surrounding INTEC and CFA where unexploded ordnance (UXO) has been identified. Although it is desirable to avoid UXO areas in order to minimize the risk and costs associated with surveying and clearing large areas, it appears to be unavoidable for locating new percolation ponds unless the ponds are sited in a previously disturbed area. Extensive safety and administrative requirements applicable to ground disturbance, excavation, and construction are in place to protect the health and safety of persons working in a UXO area.

4.5 Demography, Land Use, and Infrastructure

Due to the facility-specific nature of this siting study, discussions of demography and land use in this subsection are mainly specific to INTEC, CFA, and adjacent areas. Information applicable to the entire INEEL can be found in Holdren et al. 1997 and DOE-ID 1996.

4.5.1 Demography

Human populations potentially affected by new percolation ponds include INTEC, CFA, and TRA employees; ranchers who graze livestock in areas on or near INTEC; hunters on or near the adjacent areas; and visitors or other INEEL employees to INTEC and CFA who use the general access roads and highways.

In January 1999, the approximate number of employees at INTEC was 1,060, 913 at CFA and 450 at TRA. Off-INEEL population descriptions are discussed in Holdren et al. 1997.

4.5.2 Current Land Use

The Bureau of Land Management (BLM) classified the acreage containing and surrounding INTEC and in the areas of the proposed site as industrial and mixed use. This land is primarily used to support facility and program operations dedicated to spent nuclear fuel management, hazardous and mixed waste management and minimization, cultural resources preservation, and environmental engineering, protection, and remediation. Specifically, INTEC land is used to store spent fuel, store radioactive waste, treat radioactive waste, and develop waste management technologies. At CFA, most activity consists of INEEL-wide programmatic support. These support services include environmental monitoring and calibration laboratories, communication systems, security, fire protection, medical services, warehouses, a cafeteria, vehicle and equipment pools, power distribution, bus operations, and vehicle maintenance. The National Oceanic and Atmospheric Administration and the USGS also maintain offices at CFA.

Large tracts of land are reserved as buffer and safety zones around the boundary of the INEEL; however, none of these buffer zones encroach upon the INTEC facility or the proposed site. The core of

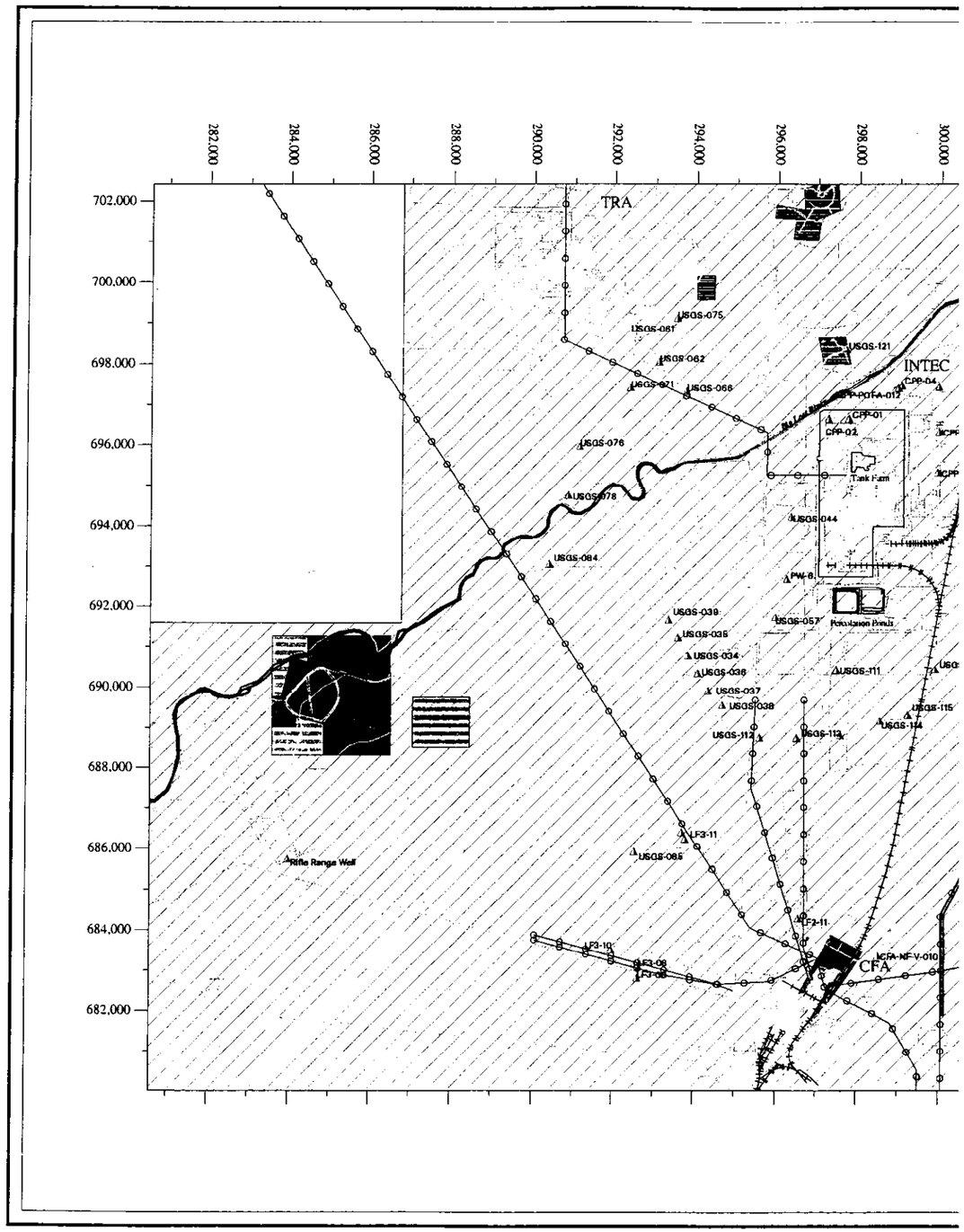


Figure 4-11. Unexploded ordnance areas.

the INEEL reservation, which is largely undeveloped and in which the INTEC facility is located, is also used for environmental research, ecological preservation, and sociocultural preservation.

4.5.3 Future Land Use

Future INEEL land use is addressed in two documents: (1) "Long-term Land Use Future Scenarios for the INEL" (DOE-ID 1995) and (2) "INEL Comprehensive Facility and Land-Use Plan" (DOE-ID 1996). Because future land-use scenarios are uncertain, assumptions were made in the document "Long-Term Land Use Future Scenarios for the INEL" for defining factors such as development pressure, advances in research and technology, and ownership patterns. The following assumptions were applied to develop forecasts for land use within the INEEL and most apply to INTEC and CFA:

- The INEEL will remain under government ownership and institutional control for at least the next 100 years.
- The life expectancy of current and new facilities is expected to range between 30 and 50 years. The decontamination and dismantlement process will commence following closure of each facility if new missions for the facility are not determined.
- No residential development (e.g., housing) will occur within the INEEL boundaries within the institutional control period.
- No new major, private developments (residential or nonresidential) are expected in areas adjacent to the INEEL.

Future land use will likely remain essentially the same as the current use: as a research facility within the INEEL boundaries. Another potential but less likely land use may be the return of on-Site areas to their natural undeveloped state.

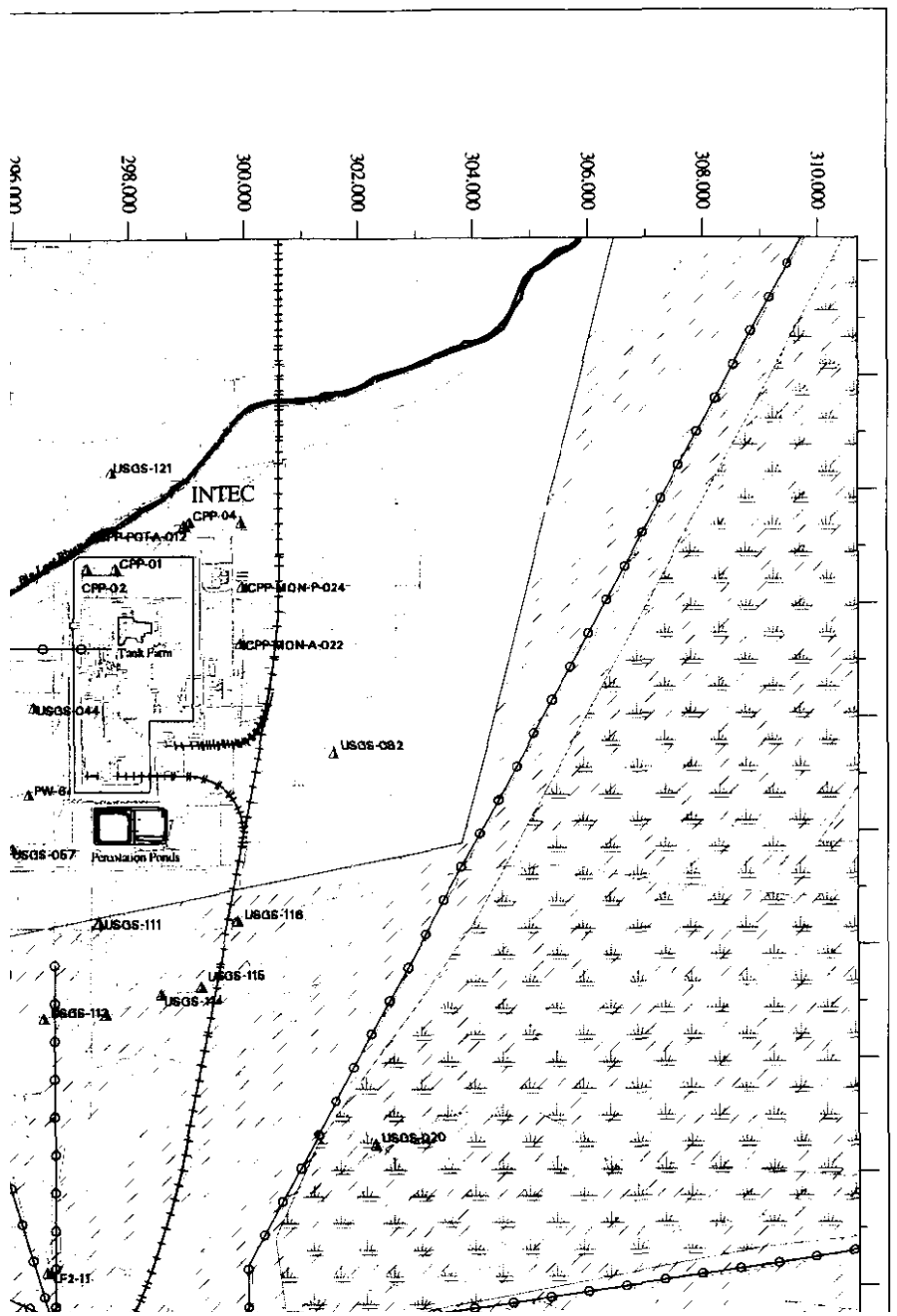
The INEEL preferred development area is an area designated as supportive of future major development after the constraining effects of surface water areas, higher seismic risk, wetland/riparian habitat, archaeological/cultural resources, ecologically sensitive areas, and the grazing area/buffer zone are considered in total.

Preferred development corridors, located within the INEEL preferred development area, are defined by the proximity of support infrastructure such as power and transportation routes.

Projections for the INTEC facility over the next 100 years is provided in the *INEL Comprehensive Facility and Land Use Plan* (DOE-ID 1996). Projections include increasing wet/dry fuel storage capacity, treating high-level waste, and packaging waste for off-site shipment. Figure 4-12 illustrates the preferred development areas around INTEC and CFA.

Other concurrent projects are in the process of evaluating the suitability of locations near INTEC for siting solid waste disposal facilities (Figure 4-13). A siting study was done to assess the feasibility of locating a HLWF and a LLWL on the INEEL (Holdren et al. 1997). Sixteen candidate sites across the INEEL were evaluated against regulatory, preferred, and recommended criteria, and ranked by location. INTEC was ranked Number 1 for the HLWF, and a location just south of INTEC was ranked Number 1 for the LLWL.

Preferred Development Area and Corridor on the INEEL



Legend

- Roads and Buildings
- Railroads
- Powerlines
- Existing Percolation Ponds, Tank Farm, INTEC Boundary
- Big Lost River
- Preferred Development Area
- Preferred Development Corridor
- Approximate New Percolation Pond Area
- Well Locations

Explanation: Portions near INTEC of the preferred development area and corridor, as defined in the Land Use Plan, which comprise the central portion of the INEEL.

Reference: DOE–ID, March 1996, Idaho National Engineering Laboratory Comprehensive Facility and Land Use Plan, DOE/ID–10514, U.S. Department of Energy Idaho Operations Office.

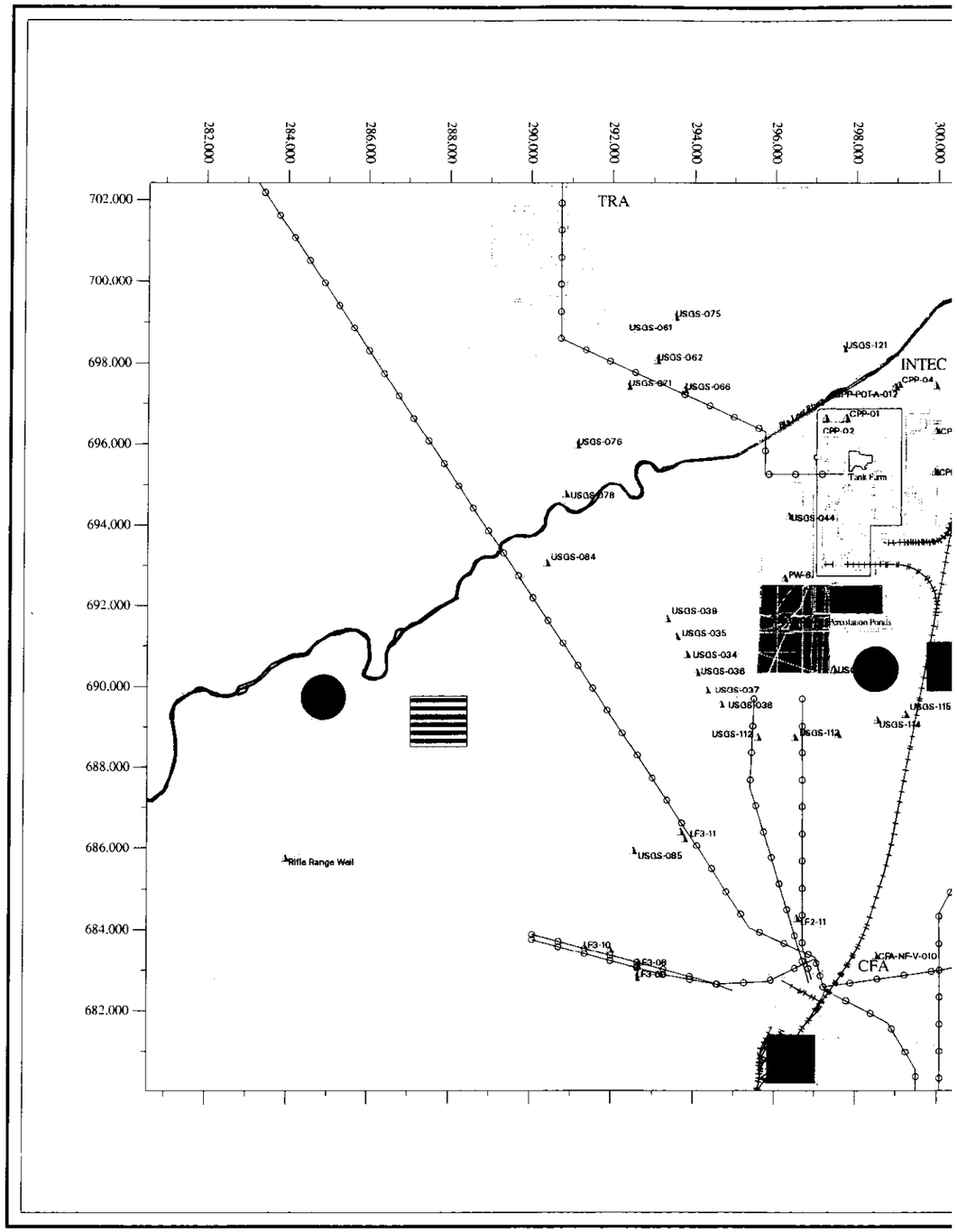


Figure 4-13. Candidate locations for the HLWF, LLWL, ICDF, and the proposed location of new percolation ponds

Another siting study is in progress to identify a potential location for the ICDF; an engineered facility meeting RCRA Subtitle C design and construction requirements for disposal of WAG 3 wastes and other CERCLA-generated wastes at the INEEL. It is defined as landfill designed to prevent future degradation of soils or groundwater that "will accept soils and debris from CERCLA remedial actions throughout the INEEL." The draft record of decision for OU 3-13 states that the ICDF is likely to be constructed in the westernmost cell of the existing INTEC percolation pond and west of that location.

4.6 Infrastructure

The entire INTEC infrastructure comprises 139 buildings, 10 temporary buildings, 7 trailers, and 120 structures in the plant area (see Figure 1-2). Buildings include administrative, maintenance, process, storage, laboratory, and special use areas totaling 106,139 m^2 (1,142,478 ft^2). The condition of the buildings and structures correspond with age. The average age of INTEC buildings is 18 years. The plant area within the perimeter fence is 8.4 ha (210 acre) with an additional 22 ha (55 acre) outside the fence.

4.6.1 Roads

The major roads shown in Figure 3-2 are suitable for truck transport as long as Department of Transportation regulations are observed. Secondary, unimproved roads will be upgraded as necessary to accommodate construction of the new facility. There are no public access roads that pass near the INTEC or the proposed site. Lincoln Boulevard, running north-south from the CFA up to TAN and passing near the INTEC approximately 4 km (2.5 mi) north of CFA, is not accessible to the public. Around the INEEL, State Highways 22, 28, and 33 cross the northeastern portion of the Site, and U.S. Highways 20 and 26 cross the southern portion. About 145 km (90 mi) of paved highways used by the general public pass through the INEEL.

4.6.2 Railroads

The railroad spur connecting the INEEL to the western Union Pacific rail route crosses the southwest corner of the INEEL from southeast to northwest. This spur, dedicated to the INEEL, originates at Naval Reactors Facility (NRF), bypasses TRA, passes INTEC east of the facility, and passes through CFA on its way to the main line.

Construction buffer restrictions along the spur (Figure 4-14), for the purpose of the new percolation ponds, require a toe-of-slope to toe-of-slope separation of 15 m (50 ft), or a distance of approximately 21 m (70 ft) from the center of the track (see Appendix A).

4.6.3 Power

A Utah Power and Light 138 kilovolt (kV) line runs northeast to southwest approximately 1,676 m (5,500 ft) east of the existing percolation ponds (Figure 4-15). Electrical power at 138 kV is supplied to the plant's main substation by redundant power feeds from the INEEL power grid. The 138 kV power is then stepped down to 13.8 kV and is distributed to the plant loads via underground ducts. Standby power is provided to important plant loads by diesel generators. A major plant electrical upgrade project is in progress to provide a more reliable system by replacing aging equipment and extending the distribution system.

A safety buffer along all INEEL power lines requires that no construction occur within an 18-m (60-ft) boundary on either side of the power lines (Appendix A). Other INEEL service lines near INTEC are west/southwest of INTEC and west of Lincoln Boulevard.

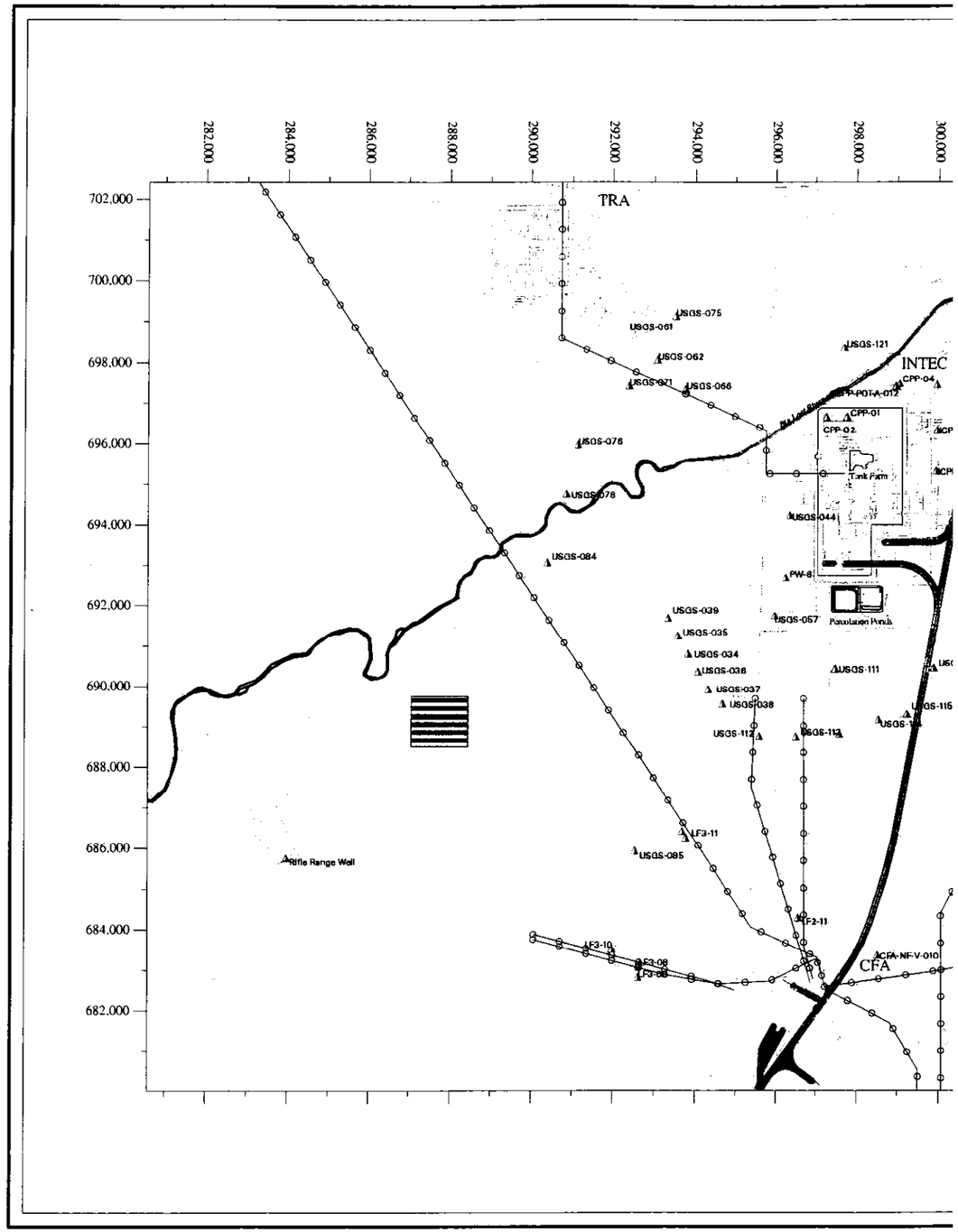
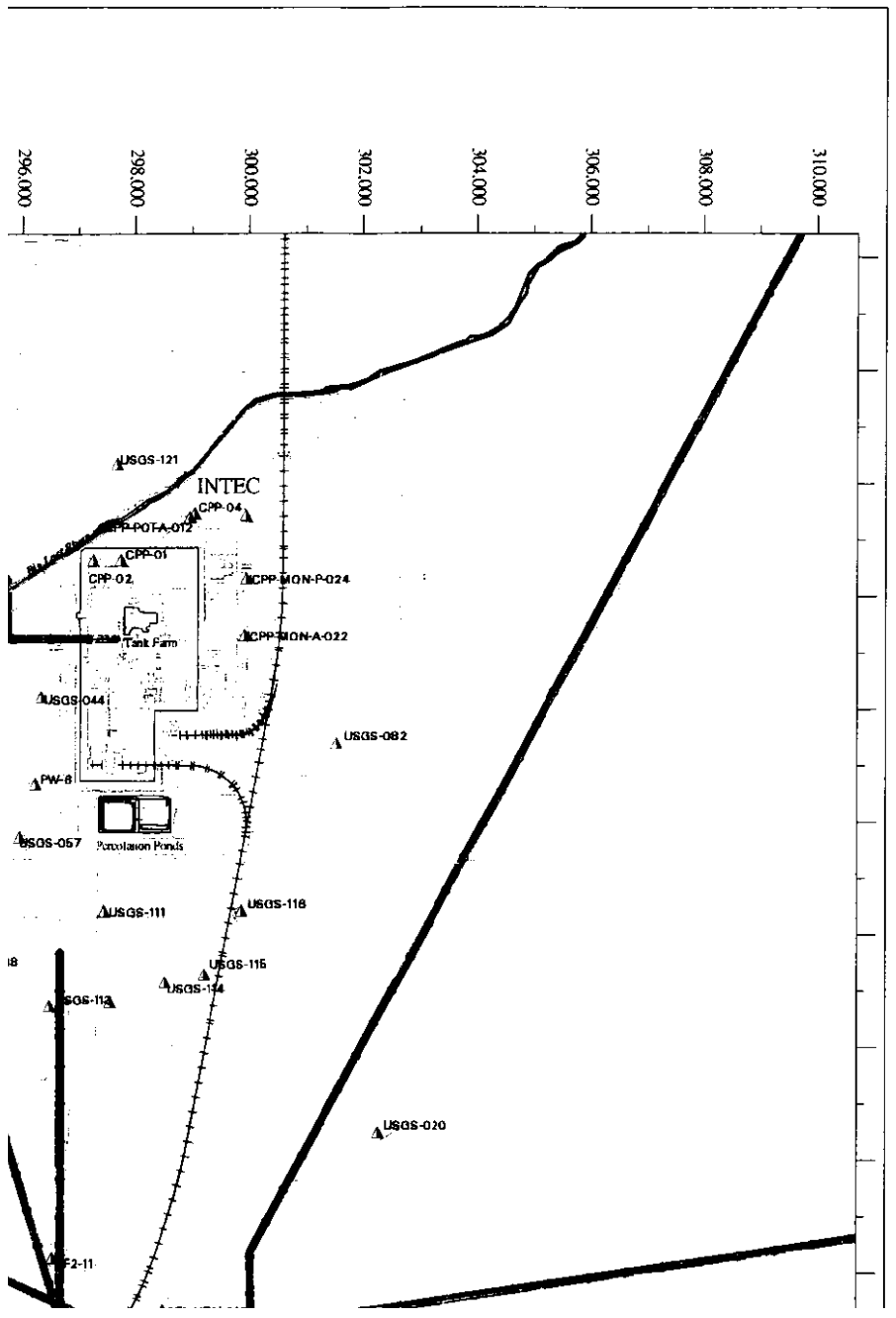


Figure 4-14. Construction buffer along the railroad spur east of INTEC.



Powerline Construction Buffer

N
W E
S

Legend

- Roads and Buildings
- Railroads
- Powerlines
- Existing Percolation Ponds, Tank Farm, INTEC Boundary
- Big Lost River
- Construction Setback Requirements – 60 ft. on either side of powerline.
- Approximate New Percolation Pond Area
- Well Locations

Reference: Bruce Jensen, Utah Power and Light, personal communication with Leman D. Veile of LMITCO December 1998.

4.6.4 Water Supply

The plant's fire and potable water is supplied by two separate pairs of dedicated wells: CPP-01 and -02; and CPP-04 and -05 (a.k.a. ICPP-POT-A-012) (see Figure 1-2). Currently, only CPP-04 and CPP-05 are used to supply potable water.

4.6.5 Emergency Response

Primary emergency response services housed on the INEEL include fire response units and emergency medical assistance. Health physics, radiological control, and industrial hygiene support also are available. Emergency fire and medical support are currently available from TAN, Argonne National Laboratory-West, and CFA. CFA also houses the primary health physics, radiological control, and industrial hygiene support organizations for the Site.